#3

SEQUENCE LISTING

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MARKLAND, William
KENT, Rachel B.
ROBERTS, Bruce L.
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<120> ITI-D1 KUNITZ DOMAIN MUTANTS AS nHE INHIBITORS

<130> LEY=1B

<140> 10/038,722
<141> 2002-01-08

<150> US 08/849,406
<151> 1999-07-21

<150> PCT/US95/16349
<151> 1995-12-15

<150> US 08/358,160
<151> 1994-12-16

<160> 129

<170> PatentIn version 3.1

<210> 1
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<220>
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<400> 1
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gatttctgtc tcgagccacc atacactggg ccctgcaaag cgcgcatcat ccgctatttc 120

tacaatgcta aagcaggcct gtgccagacc tttgtatacg gtggttgccg tgctaagcgt 180

aacaacttta aatcggccga agattgcatg cgtacctgcg gtggcgccgc tgaaactgtt 240

gaaagttgtt tagcaaaacc ccatacagaa aattca 276

<210> 2
<211> 92
<212> PRT
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<220>
<223> IIIsp::bpti::mautreIII (initial fragment)

<400> 2

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Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser
1               5                  10                  15

Gly Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys
            20                  25                  30

Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys
        35                  40                  45

Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys
    50                  55                  60

Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala Ala Glu Thr Val
65                  70                  75                  80

Glu Ser Cys Leu Ala Lys Pro His Thr Glu Asn Ser
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<210> 3
<211> 285
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<213> Artificial Sequence

<220>
<223> IIIsp::itiD1::mature III fusion gene

<400> 3

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gactcttgcc agctgggcta ctcggccggt ccctgcatgg gaatgaccag caggtatttc    120

tataatggta catccatggc ctgtgagact ttccagtacg gcggctgcat gggcaacggt    180

aacaacttcg tcacagaaaa ggagtgtctg cagacctgcc gaactgtggg cgccgctgaa    240

actgttgaaa gttgtttagc aaaaccccat acagaaaatt catttt                   285
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<210> 4
<211> 95
<212> PRT
<213> Artificial Sequence

<220>
<223> IIIsp::itiD1::mature III fusion gene

<400> 4

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Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser
1               5                  10                  15
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Gly Ala Lys Glu Asp Ser Cys Gln Leu Gly Tyr Ser Ala Gly Pro Cys
            20                  25                  30

Met Gly Met Thr Ser Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys
        35                  40                  45

Glu Thr Phe Gln Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val
    50                  55                  60

Thr Glu Lys Glu Cys Leu Gln Thr Cys Arg Thr Val Gly Ala Ala Glu
65                  70                  75                  80

Thr Val Glu Ser Cys Leu Ala Lys Pro His Thr Glu Asn Ser Phe
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<210> 5
<211> 58
<212> PRT
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<220>
<223> Consensus Kunitz domain

<400> 5

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Arg Pro Asp Phe Cys Leu Leu Pro Ala Glu Thr Gly Pro Cys Arg Ala
1               5                   10                  15

Met Ile Pro Arg Phe Tyr Tyr Asn Ala Lys Ser Gly Lys Cys Glu Pro
            20                  25                  30

Phe Ile Tyr Gly Gly Cys Gly Gly Asn Ala Asn Asn Phe Lys Thr Glu
        35                  40                  45

Glu Glu Cys Arg Arg Thr Cys Gly Gly Ala
    50                  55
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<210> 6
<211> 58
<212> PRT
<213> Bos Taurus

<400> 6

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Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
1               5                   10                  15
```

```
Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
        35                  40                  45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55
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<210> 7
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Epi-HNE-1

<400> 7

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Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ile Ala
1               5                   10                  15

Phe Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
        35                  40                  45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55
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<210> 8
<211> 62
<212> PRT
<213> Artificial Sequence

<220>
<223> Epi-HNE-2

<400> 8

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Glu Ala Glu Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly
1               5                   10                  15

Pro Cys Ile Ala Phe Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly
            20                  25                  30

Leu Cys Gln Thr Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn
        35                  40                  45
```

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Phe Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55                  60


<210>  9
<211>  58
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  EpiNE7

<400>  9

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1               5                   10                  15


Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30


Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
        35                  40                  45


Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55


<210>  10
<211>  58
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  EpiNE3

<400>  10

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Gly
1               5                   10                  15


Phe Phe Ser Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30


Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
        35                  40                  45


Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55
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<210> 11
<211> 58
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<213> Artificial Sequence

<220>
<223> EpiNE6

<400> 11

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Gly
1 5 10 15

Phe Phe Gln Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 12
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> EpiNE4

<400> 12

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Ile Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 13
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> EpiNE8

<400> 13

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Phe Phe Lys Arg Ser Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 14
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> EpiNE5

<400> 14

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ile Ala
1 5 10 15

Phe Phe Gln Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 15
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> EpiNE2

<400> 15

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ile Ala
1 5 10 15

```
Leu Phe Lys Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
        35                  40                  45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55
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<210> 16
<211> 58
<212> PRT
<213> Homo sapiens

<400> 16

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Lys Glu Asp Ser Cys Gln Leu Gly Tyr Ser Ala Gly Pro Cys Met Gly
1               5                   10                  15

Met Thr Ser Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys Glu Thr
            20                  25                  30

Phe Gln Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val Thr Glu
        35                  40                  45

Lys Asp Cys Leu Gln Thr Cys Arg Thr Val
    50                  55
```

<210> 17
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> BITI-E7-141

<400> 17

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Arg Pro Asp Phe Cys Gln Leu Gly Tyr Ser Ala Gly Pro Cys Val Ala
1               5                   10                  15

Met Phe Pro Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys Gln Thr
            20                  25                  30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val Thr Glu
        35                  40                  45
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Lys Asp Cys Leu Gln Thr Cys Arg Gly Ala
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<210> 18
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> MUTT26A

<400> 18

Arg Pro Asp Phe Cys Gln Leu Gly Tyr Ser Ala Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Gly Ala Ser Met Ala Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val Thr Glu
35 40 45

Lys Asp Cys Leu Gln Thr Cys Arg Gly Ala
50 55

<210> 19
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> MUTQE

<400> 19

Arg Pro Asp Phe Cys Gln Leu Gly Tyr Ser Ala Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys Glu Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val Thr Glu
35 40 45

Lys Asp Cys Leu Gln Thr Cys Arg Gly Ala
50 55

<210> 20

<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> MUT1619

<400> 20

Arg Pro Asp Phe Cys Gln Leu Gly Tyr Ser Ala Gly Pro Cys Val Gly
1 5 10 15

Met Phe Ser Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val Thr Glu
35 40 45

Lys Asp Cys Leu Gln Thr Cys Arg Gly Ala
50 55

<210> 21
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> ITI-D1E7

<400> 21

Lys Glu Asp Ser Cys Gln Leu Gly Tyr Ser Ala Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys Glu Thr
20 25 30

Phe Gln Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val Thr Glu
35 40 45

Lys Asp Cys Leu Gln Thr Cys Arg Gly Ala
50 55

<210> 22
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> AMINO1

<400> 22

Lys Glu Asp Phe Cys Gln Leu Gly Tyr Ser Ala Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys Glu Thr
20 25 30

Phe Gln Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val Thr Glu
35 40 45

Lys Asp Cys Leu Gln Thr Cys Arg Gly Ala
50 55

<210> 23
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> AMINO2

<400> 23

Lys Pro Asp Ser Cys Gln Leu Gly Tyr Ser Ala Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys Glu Thr
20 25 30

Phe Gln Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val Thr Glu
35 40 45

Lys Asp Cys Leu Gln Thr Cys Arg Gly Ala
50 55

<210> 24
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> MUTP1

<400> 24

Arg Pro Asp Phe Cys Gln Leu Gly Tyr Ser Ala Gly Pro Cys Ile Gly
1 5 10 15

Met Phe Ser Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys Glu Thr
20 25 30

Phe Gln Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val Thr Glu
35 40 45

Lys Asp Cys Leu Gln Thr Cys Arg Gly Ala
50 55

<210> 25
<211> 58
<212> PRT
<213> Homo sapiens

<400> 25

Thr Val Ala Ala Cys Asn Leu Pro Ile Val Arg Gly Pro Cys Arg Ala
1 5 10 15

Phe Ile Gln Leu Trp Ala Phe Asp Ala Val Lys Gly Lys Cys Val Leu
20 25 30

Phe Pro Tyr Gly Gly Cys Gln Gly Asn Gly Asn Lys Phe Tyr Ser Glu
35 40 45

Lys Glu Cys Arg Glu Tyr Cys Gly Val Pro
50 55

<210> 26
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<212> PRT
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<220>
<223> Epi-HNE-3

<400> 26

Ala Ala Cys Asn Leu Pro Ile Val Arg Gly Pro Cys Ile Ala Phe Phe
1 5 10 15

Pro Arg Trp Ala Phe Asp Ala Val Lys Gly Lys Cys Val Leu Phe Pro
20 25 30

Tyr Gly Gly Cys Gln Gly Asn Gly Asn Lys Phe Tyr Ser Glu Lys Glu
35 40 45

Cys Arg Glu Tyr Cys Gly Val Pro
50 55

<210> 27
<211> 56
<212> PRT
<213> Artificial Sequence

<220>
<223> Epi-HNE-4

<400> 27

Glu Ala Cys Asn Leu Pro Ile Val Arg Gly Pro Cys Ile Ala Phe Phe
1 5 10 15

Pro Arg Trp Ala Phe Asp Ala Val Lys Gly Lys Cys Val Leu Phe Pro
20 25 30

Tyr Gly Gly Cys Gln Gly Asn Gly Asn Lys Phe Tyr Ser Glu Lys Glu
35 40 45

Cys Arg Glu Tyr Cys Gly Val Pro
50 55

<210> 28
<211> 58
<212> PRT
<213> Homo sapiens

<400> 28

Val Arg Glu Val Cys Ser Glu Gln Ala Glu Thr Gly Pro Cys Arg Ala
1 5 10 15

Met Ile Ser Arg Trp Tyr Phe Asp Val Thr Glu Gly Lys Cys Ala Pro
20 25 30

Phe Phe Tyr Gly Gly Cys Gly Gly Asn Arg Asn Asn Phe Asp Thr Glu
35 40 45

Glu Tyr Cys Met Ala Val Cys Gly Ser Ala
50 55

<210> 29
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> DPI.1.1

<400> 29

Val Arg Glu Val Cys Ser Glu Gln Ala Tyr Thr Gly Pro Cys Ile Ala
1 5 10 15

Phe Phe Pro Arg Tyr Tyr Phe Asp Val Thr Glu Gly Lys Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Asp Thr Glu
35 40 45

Glu Tyr Cys Met Ala Val Cys Gly Ser Ala
50 55

<210> 30
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
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<400> 30

Val Arg Glu Val Cys Ser Glu Gln Ala Glu Thr Gly Pro Cys Ile Ala
1 5 10 15

Met Phe Ser Arg Trp Tyr Phe Asp Val Thr Glu Gly Lys Cys Ala Pro
20 25 30

Phe Val Tyr Gly Gly Cys Gly Gly Asn Arg Asn Asn Phe Asp Thr Glu
35 40 45

Glu Tyr Cys Met Ala Val Cys Gly Ser Ala
50 55

<210> 31
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> DPI.1.3

<400> 31

Val Arg Glu Val Cys Ser Glu Gln Ala Glu Thr Gly Pro Cys Ile Ala

1 5 10 15

Phe Phe Ser Arg Trp Tyr Phe Asp Val Thr Glu Gly Lys Cys Ala Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Arg Asn Asn Phe Asp Thr Glu
35 40 45

Glu Tyr Cys Met Ala Val Cys Gly Ser Ala
50 55

<210> 32
<211> 58
<212> PRT
<213> Homo sapiens

<400> 32

Asn Ala Glu Ile Cys Leu Leu Pro Leu Asp Tyr Gly Pro Cys Arg Ala
1 5 10 15

Leu Leu Leu Arg Tyr Tyr Tyr Asp Arg Tyr Thr Gln Ser Cys Arg Gln
20 25 30

Phe Leu Tyr Gly Gly Cys Glu Gly Asn Ala Asn Asn Phe Tyr Thr Trp
35 40 45

Glu Ala Cys Asp Asp Ala Cys Trp Arg Ile
50 55

<210> 33
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> DPI.2.1

<400> 33

Asn Ala Glu Ile Cys Leu Leu Pro Leu Tyr Thr Gly Pro Cys Ile Ala
1 5 10 15

Phe Phe Pro Arg Tyr Tyr Tyr Asp Arg Tyr Thr Gln Ser Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Ala Asn Asn Phe Tyr Thr Trp
35 40 45

Glu Ala Cys Asp Asp Ala Cys Trp Arg Ile
50 55

<210> 34
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> DPI.2.2

<400> 34

Asn Ala Glu Ile Cys Leu Leu Pro Leu Asp Tyr Gly Pro Cys Ile Ala
1 5 10 15

Leu Phe Leu Arg Tyr Tyr Tyr Asp Arg Tyr Thr Gln Ser Cys Arg Gln
20 25 30

Phe Val Tyr Gly Gly Cys Glu Gly Asn Ala Asn Asn Phe Tyr Thr Trp
35 40 45

Glu Ala Cys Asp Asp Ala Cys Trp Arg Ile
50 55

<210> 35
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> DPI.2.3

<400> 35

Asn Ala Glu Ile Cys Leu Leu Pro Leu Asp Thr Gly Pro Cys Ile Ala
1 5 10 15

Phe Phe Leu Arg Tyr Tyr Tyr Asp Arg Tyr Thr Gln Ser Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Ala Asn Asn Phe Tyr Thr Trp
35 40 45

Glu Ala Cys Asp Asp Ala Cys Trp Arg Ile
50 55

<210> 36
<211> 61
<212> PRT
<213> Homo sapiens

<400> 36

Val Pro Lys Val Cys Arg Leu Gln Val Ser Val Asp Asp Gln Cys Glu
1 5 10 15

Gly Ser Thr Glu Lys Tyr Phe Phe Asn Leu Ser Ser Met Thr Cys Glu
20 25 30

Lys Phe Phe Ser Gly Gly Cys His Arg Asn Arg Ile Glu Asn Arg Phe
35 40 45

Pro Asp Glu Ala Thr Cys Met Gly Phe Cys Ala Pro Lys
50 55 60

<210> 37
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> DPI.3.1

<400> 37

Val Pro Lys Val Cys Arg Leu Gln Val Val Arg Gly Pro Cys Ile Ala
1 5 10 15

Phe Phe Pro Arg Trp Phe Phe Asn Leu Ser Ser Met Thr Cys Val Leu
20 25 30

Phe Pro Tyr Gly Gly Cys Gln Gly Asn Gly Asn Arg Phe Pro Asp Glu
35 40 45

Ala Thr Cys Met Gly Phe Cys Ala Pro Lys
50 55

<210> 38
<211> 61
<212> PRT
<213> Artificial Sequence

<220>
<223> DPI.3.2

<400> 38

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Val Pro Lys Val Cys Arg Leu Gln Val Ser Val Asp Asp Gln Cys Ile
1               5                   10                  15

Gly Ser Phe Glu Lys Tyr Phe Phe Asn Leu Ala Ser Met Thr Cys Glu
            20                  25                  30

Thr Phe Val Ser Gly Gly Cys His Arg Asn Arg Ile Glu Asn Arg Phe
        35                  40                  45

Pro Asp Glu Ala Thr Cys Met Gly Phe Cys Ala Pro Lys
    50                  55                  60
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<210> 39
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> DPI.3.3

<400> 39

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Val Pro Lys Val Cys Arg Leu Gln Val Val Ala Gly Pro Cys Ile Gly
1               5                   10                  15

Phe Phe Lys Arg Tyr Phe Phe Ala Leu Ser Ser Met Thr Cys Glu Thr
            20                  25                  30

Phe Val Ser Gly Gly Cys His Arg Asn Arg Asn Arg Phe Pro Asp Glu
        35                  40                  45

Ala Thr Cys Met Gly Phe Cys Ala Pro Lys
    50                  55
```

<210> 40
<211> 58
<212> PRT
<213> Homo sapiens

<400> 40

```
Ile Pro Ser Phe Cys Tyr Ser Pro Lys Asp Glu Gly Leu Cys Ser Ala
1               5                   10                  15

Asn Val Thr Arg Tyr Tyr Phe Asn Pro Arg Tyr Arg Thr Cys Asp Ala
            20                  25                  30
```

Phe Thr Tyr Thr Gly Cys Gly Gly Asn Asp Asn Asn Phe Val Ser Arg
35 40 45

Glu Asp Cys Lys Arg Ala Cys Ala Lys Ala
50 55

<210> 41
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> DPI.4.1

<400> 41

Ile Pro Ser Phe Cys Tyr Ser Pro Lys Ser Ala Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Tyr Phe Asn Pro Arg Tyr Arg Thr Cys Glu Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val Ser Arg
35 40 45

Glu Asp Cys Lys Arg Ala Cys Ala Lys Ala
50 55

<210> 42
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> DPI.4.2

<400> 42

Ile Pro Ser Phe Cys Tyr Ser Pro Lys Asp Glu Gly Leu Cys Ile Ala
1 5 10 15

Phe Phe Thr Arg Tyr Tyr Phe Asn Pro Arg Tyr Arg Thr Cys Asp Ala
20 25 30

Phe Thr Tyr Thr Gly Cys Gly Gly Asn Asp Asn Asn Phe Val Ser Arg
35 40 45

Glu Asp Cys Lys Arg Ala Cys Ala Lys Ala
50 55

<210> 43
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> DPI.4.3

<400> 43

Ile Pro Ser Phe Cys Tyr Ser Pro Lys Asp Thr Gly Pro Cys Ile Ala
1 5 10 15

Phe Phe Thr Arg Tyr Tyr Phe Asn Pro Arg Tyr Arg Thr Cys Asp Thr
20 25 30

Phe Val Tyr Gly Gly Cys Gly Gly Asn Asp Asn Asn Phe Val Ser Arg
35 40 45

Glu Asp Cys Lys Arg Ala Cys Ala Lys Ala
50 55

<210> 44
<211> 58
<212> PRT
<213> Homo sapiens

<400> 44

Met His Ser Phe Cys Ala Phe Lys Ala Asp Asp Gly Pro Cys Lys Ala
1 5 10 15

Ile Met Lys Arg Phe Phe Phe Asn Ile Phe Thr Arg Gln Cys Glu Glu
20 25 30

Phe Ile Tyr Gly Gly Cys Glu Gly Asn Gln Asn Arg Phe Glu Ser Leu
35 40 45

Glu Glu Cys Lys Lys Met Cys Thr Arg Asp
50 55

<210> 45
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> DPI.5.1

<400> 45

Met His Ser Phe Cys Ala Phe Lys Ala Ser Ala Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Phe Asn Ile Phe Thr Arg Gln Cys Glu Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Arg Phe Glu Ser Leu
35 40 45

Glu Glu Cys Lys Lys Met Cys Thr Arg Asp
50 55

<210> 46
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> DPI.5.2

<400> 46

Met His Ser Phe Cys Ala Phe Lys Ala Asp Asp Gly Pro Cys Ile Ala
1 5 10 15

Ile Phe Lys Arg Phe Phe Phe Asn Ile Phe Thr Arg Gln Cys Glu Glu
20 25 30

Phe Ile Tyr Gly Gly Cys Glu Gly Asn Gln Asn Arg Phe Glu Ser Leu
35 40 45

Glu Glu Cys Lys Lys Met Cys Thr Arg Asp
50 55

<210> 47
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> DPI.5.3

<400> 47

Met His Ser Phe Cys Ala Phe Lys Ala Tyr Thr Gly Pro Cys Ile Ala
1 5 10 15

Phe Phe Lys Arg Phe Phe Phe Asn Ile Phe Thr Arg Gln Cys Glu Thr
20 25 30

Phe Ile Tyr Gly Gly Cys Glu Gly Asn Gln Asn Arg Phe Glu Ser Leu
35 40 45

Glu Glu Cys Lys Lys Met Cys Thr Arg Asp
50 55

<210> 48
<211> 58
<212> PRT
<213> Homo sapiens

<400> 48

Lys Pro Asp Phe Cys Phe Leu Glu Glu Asp Pro Gly Ile Cys Arg Gly
1 5 10 15

Tyr Ile Thr Arg Tyr Phe Tyr Asn Asn Gln Thr Lys Gln Cys Glu Arg
20 25 30

Phe Lys Tyr Gly Gly Cys Leu Gly Asn Met Asn Asn Phe Glu Thr Leu
35 40 45

Glu Glu Cys Lys Asn Ile Cys Glu Asp Gly
50 55

<210> 49
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> DPI.6.1

<400> 49

Lys Pro Asp Phe Cys Phe Leu Glu Glu Ser Ala Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Asn Gln Thr Lys Gln Cys Glu Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Glu Thr Leu
35 40 45

```
Glu Glu Cys Lys Asn Ile Cys Glu Asp Gly
    50                  55


<210>  50
<211>  58
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  DPI.6.2

<400>  50

Lys Pro Asp Phe Cys Phe Leu Glu Glu Asp Pro Gly Ile Cys Val Gly
1               5                   10                  15


Tyr Phe Thr Arg Tyr Phe Tyr Asn Asn Gln Thr Lys Gln Cys Glu Arg
            20                  25                  30


Phe Lys Tyr Gly Gly Cys Leu Gly Asn Met Asn Asn Phe Glu Thr Leu
        35                  40                  45


Glu Glu Cys Lys Asn Ile Cys Glu Asp Gly
    50                  55


<210>  51
<211>  58
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  DPI.6.3

<400>  51

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            20                  25                  30


Phe Val Tyr Gly Gly Cys Leu Gly Asn Met Asn Asn Phe Glu Thr Leu
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Glu Glu Cys Lys Asn Ile Cys Glu Asp Gly
    50                  55


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<211>  58
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<212> PRT
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<223> DPI.6.4

<400> 52

Lys Pro Asp Phe Cys Phe Leu Glu Glu Asp Pro Gly Ile Cys Val Gly
1 5 10 15

Phe Phe Thr Arg Tyr Phe Tyr Asn Ala Gln Thr Lys Gln Cys Glu Arg
20 25 30

Phe Val Tyr Gly Gly Cys Leu Gly Asn Met Asn Asn Phe Glu Thr Leu
35 40 45

Glu Glu Cys Lys Asn Ile Cys Glu Asp Gly
50 55

<210> 53
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> DPI.6.5

<400> 53

Lys Pro Asp Phe Cys Phe Leu Glu Glu Asp Pro Gly Pro Cys Val Gly
1 5 10 15

Phe Phe Gln Arg Tyr Phe Tyr Asn Ala Gln Thr Lys Gln Cys Glu Arg
20 25 30

Phe Val Tyr Gly Gly Cys Gln Gly Asn Met Asn Asn Phe Glu Thr Leu
35 40 45

Glu Glu Cys Lys Asn Ile Cys Glu Asp Gly
50 55

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<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> DPI.6.6

<400> 54

Lys Pro Asp Phe Cys Phe Leu Glu Glu Asp Pro Gly Pro Cys Val Gly
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Phe Phe Thr Arg Tyr Phe Tyr Asn Asn Gln Thr Lys Gln Cys Glu Arg
20 25 30

Phe Val Tyr Gly Gly Cys Gln Gly Asn Met Asn Asn Phe Glu Thr Leu
35 40 45

Glu Glu Cys Lys Asn Ile Cys Glu Asp Gly
50 55

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Lys Pro Asp Phe Cys Phe Leu Glu Glu Asp Pro Gly Pro Cys Ile Gly
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Phe Phe Pro Arg Tyr Phe Tyr Asn Asn Gln Thr Lys Gln Cys Glu Arg
20 25 30

Phe Val Tyr Gly Gly Cys Gln Gly Asn Met Asn Asn Phe Glu Thr Leu
35 40 45

Glu Glu Cys Lys Asn Ile Cys Glu Asp Gly
50 55

<210> 56
<211> 58
<212> PRT
<213> Homo sapiens

<400> 56

Gly Pro Ser Trp Cys Leu Thr Pro Ala Asp Arg Gly Leu Cys Arg Ala
1 5 10 15

Asn Glu Asn Arg Phe Tyr Tyr Asn Ser Val Ile Gly Lys Cys Arg Pro
20 25 30

Phe Lys Tyr Ser Gly Cys Gly Gly Asn Glu Asn Asn Phe Thr Ser Lys
35 40 45

Gln Glu Cys Leu Arg Ala Cys Lys Lys Gly
50 55

<210> 57
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<212> PRT
<213> Artificial Sequence

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<223> DPI.7.1

<400> 57

Gly Pro Ser Trp Cys Leu Thr Pro Ala Val Arg Gly Pro Cys Ile Ala
1 5 10 15

Phe Phe Pro Arg Trp Tyr Tyr Asn Ser Val Ile Gly Lys Cys Val Leu
20 25 30

Phe Pro Tyr Gly Gly Cys Gln Gly Asn Gly Asn Asn Phe Thr Ser Lys
35 40 45

Gln Glu Cys Leu Arg Ala Cys Lys Lys Gly
50 55

<210> 58
<211> 58
<212> PRT
<213> Artificial Sequence

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<223> DPI.7.2

<400> 58

Gly Pro Ser Trp Cys Leu Thr Pro Ala Asp Arg Gly Leu Cys Val Ala
1 5 10 15

Asn Phe Asn Arg Phe Tyr Tyr Asn Ser Val Ile Gly Lys Cys Arg Pro
20 25 30

Phe Lys Tyr Ser Gly Cys Gly Gly Asn Glu Asn Asn Phe Thr Ser Lys
35 40 45

Gln Glu Cys Leu Arg Ala Cys Lys Lys Gly

50 55

<210> 59
<211> 58
<212> PRT
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<220>
<223> DPI.7.3

<400> 59

Gly Pro Ser Trp Cys Leu Thr Pro Ala Asp Arg Gly Leu Cys Val Ala
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Phe Phe Asn Arg Phe Tyr Tyr Asn Ser Val Ile Gly Lys Cys Arg Pro
20 25 30

Phe Lys Tyr Ser Gly Cys Gly Gly Asn Glu Asn Asn Phe Lys Ser Lys
35 40 45

Gln Glu Cys Leu Arg Ala Cys Lys Lys Gly
50 55

<210> 60
<211> 58
<212> PRT
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<220>
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<400> 60

Gly Pro Ser Trp Cys Leu Thr Pro Ala Val Arg Gly Pro Cys Val Ala
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Phe Phe Asn Arg Phe Tyr Tyr Asn Ser Val Ile Gly Lys Cys Arg Pro
20 25 30

Phe Lys Tyr Gly Gly Cys Gly Gly Asn Glu Asn Asn Phe Lys Ser Lys
35 40 45

Gln Glu Cys Leu Arg Ala Cys Lys Lys Gly
50 55

<210> 61
<211> 58
<212> PRT

<213> Artificial Sequence

<220>
<223> DPI.7.5

<400> 61

Gly Pro Ser Trp Cys Leu Thr Pro Ala Asp Arg Gly Pro Cys Ile Ala
1 5 10 15

Phe Phe Pro Arg Trp Tyr Tyr Asn Ser Val Ile Gly Lys Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Gly Gly Asn Glu Asn Asn Phe Ala Ser Lys
35 40 45

Gln Glu Cys Leu Arg Ala Cys Lys Lys Gly
50 55

<210> 62
<211> 58
<212> PRT
<213> Homo sapiens

<400> 62

Glu Thr Asp Ile Cys Lys Leu Pro Lys Asp Glu Gly Thr Cys Arg Asp
1 5 10 15

Phe Ile Leu Lys Trp Tyr Tyr Asp Pro Asn Thr Lys Ser Cys Ala Arg
20 25 30

Phe Trp Tyr Gly Gly Cys Gly Gly Asn Glu Asn Lys Phe Gly Ser Gln
35 40 45

Lys Glu Cys Glu Lys Val Cys Ala Pro Val
50 55

<210> 63
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> DPI.8.1

<400> 63

Glu Thr Asp Ile Cys Lys Leu Pro Lys Val Arg Gly Pro Cys Ile Ala
1 5 10 15

Phe Phe Pro Arg Trp Tyr Tyr Asp Pro Asn Thr Lys Ser Cys Val Leu
20 25 30

Phe Pro Tyr Gly Gly Cys Gln Gly Asn Gly Asn Lys Phe Gly Ser Gln
35 40 45

Lys Glu Cys Glu Lys Val Cys Ala Pro Val
50 55

<210> 64
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> DPI.8.2

<400> 64

Glu Thr Asp Ile Cys Lys Leu Pro Lys Asp Glu Gly Thr Cys Ile Ala
1 5 10 15

Phe Phe Leu Lys Trp Tyr Tyr Asp Pro Asn Thr Lys Ser Cys Ala Arg
20 25 30

Phe Val Tyr Gly Gly Cys Gly Gly Asn Glu Asn Lys Phe Gly Ser Gln
35 40 45

Lys Glu Cys Glu Lys Val Cys Ala Pro Val
50 55

<210> 65
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> DPI.8.3

<400> 65

Glu Thr Asp Ile Cys Lys Leu Pro Lys Asp Glu Gly Pro Cys Ile Ala
1 5 10 15

Phe Phe Leu Arg Trp Tyr Tyr Asp Pro Asn Thr Lys Ser Cys Ala Arg
20 25 30

Phe Val Tyr Gly Gly Cys Gly Gly Asn Glu Asn Lys Phe Gly Ser Gln
35 40 45

Lys Glu Cys Glu Lys Val Cys Ala Pro Val
50 55

<210> 66
<211> 58
<212> PRT
<213> Homo sapiens

<400> 66

Leu Pro Asn Val Cys Ala Phe Pro Met Glu Lys Gly Pro Cys Gln Thr
1 5 10 15

Tyr Met Thr Arg Trp Phe Phe Asn Phe Glu Thr Gly Glu Cys Glu Leu
20 25 30

Phe Ala Tyr Gly Gly Cys Gly Gly Asn Ser Asn Asn Phe Leu Arg Lys
35 40 45

Glu Lys Cys Glu Lys Phe Cys Lys Phe Thr
50 55

<210> 67
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> DPI.9.1

<400> 67

Leu Pro Asn Val Cys Ala Phe Pro Met Val Arg Gly Pro Cys Ile Ala
1 5 10 15

Phe Phe Pro Arg Trp Phe Phe Asn Phe Glu Thr Gly Glu Cys Val Leu
20 25 30

Phe Val Tyr Gly Gly Cys Gln Gly Asn Gly Asn Asn Phe Leu Arg Lys
35 40 45

Glu Lys Cys Glu Lys Phe Cys Lys Phe Thr
50 55

<210> 68

<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> DPI.9.2

<400> 68

Leu Pro Asn Val Cys Ala Phe Pro Met Glu Lys Gly Pro Cys Ile Ala
1 5 10 15

Tyr Phe Thr Arg Trp Phe Phe Asn Phe Glu Thr Gly Glu Cys Glu Leu
20 25 30

Phe Ala Tyr Gly Gly Cys Gly Gly Asn Ser Asn Asn Phe Leu Arg Lys
35 40 45

Glu Lys Cys Glu Lys Phe Cys Lys Phe Thr
50 55

<210> 69
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> DPI.9.3

<400> 69

Leu Pro Asn Val Cys Ala Phe Pro Met Glu Lys Gly Pro Cys Ile Ala
1 5 10 15

Tyr Phe Pro Arg Trp Phe Phe Asn Phe Glu Thr Gly Glu Cys Val Leu
20 25 30

Phe Val Tyr Gly Gly Cys Gly Gly Asn Ser Asn Asn Phe Leu Arg Lys
35 40 45

Glu Lys Cys Glu Lys Phe Cys Lys Phe Thr
50 55

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gcagcagacc gttgcaaacg caggacctcc actcctcttc tcctcaacac ccacttttgc 180

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agggctttct gagtgtgggg tcaaatagtt tcatgttccc aaatggccca aaactgacag 420

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<210> 71
<211> 8584
<212> DNA
<213> Artificial Sequence

<220>
<223> Plasmid pHIL-D2 (MFalphaPrePro::EPI-HNE-3) (Table 251)

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taccgtttgt cttgtttggt attgattgac gaatgctcaa aaataatctc attaatgctt 600

agcgcagtct ctctatcgct tctgaacccg gtggcacctg tgccgaaacg caaatgggga 660

aacaacccgc tttttggatg attatgcatt gtcctccaca ttgtatgctt ccaagattct 720

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cgacttttaa cgacaacttg agaagatcaa aaaacaacta attattcgaa acgatgagat 960

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gcag 8584

<210> 72
<211> 141
<212> PRT
<213> Artificial Sequence

<220>
<223> Plasmid pHIL-D2 (MFalphaPrePro::EPI-HNE-3) (Table 251)

<400> 72

Met Arg Phe Pro Ser Ile Phe Thr Ala Val Leu Phe Ala Ala Ser Ser
1 5 10 15

Ala Leu Ala Ala Pro Val Asn Thr Thr Thr Glu Asp Glu Thr Ala Gln
20 25 30

Ile Pro Ala Glu Ala Val Ile Gly Tyr Ser Asp Leu Glu Gly Asp Phe
35 40 45

Asp Val Ala Val Leu Pro Phe Ser Asn Ser Thr Asn Asn Gly Leu Leu
50 55 60

Phe Ile Asn Thr Thr Ile Ala Ser Ile Ala Ala Lys Glu Glu Gly Val
65 70 75 80

Ser Leu Asp Lys Arg Ala Ala Cys Asn Leu Pro Ile Val Arg Gly Pro
85 90 95

Cys Ile Ala Phe Phe Pro Arg Trp Ala Phe Asp Ala Val Lys Gly Lys
100 105 110

Cys Val Leu Phe Pro Tyr Gly Gly Cys Gln Gly Asn Gly Asn Lys Phe
115 120 125

Tyr Ser Glu Lys Glu Cys Arg Glu Tyr Cys Gly Val Pro
130 135 140

<210> 73
<211> 444
<212> DNA
<213> Artificial Sequence

<220>
<223> BstBI-AatII-EcoRI cassette for expression of Epi-HNE-4 (Table 252
)

<400> 73
ttcgaaacga tgagattccc atctatcttc actgctgttt tgttcgctgc ttcctctgct 60

ttggctgctc cagttaacac cactactgaa gacgagactg ctcaaattcc tgctgaggct 120

gtcatcggtt actctgactt ggaaggtgac ttcgacgtcg ctgttttgcc attctctaac 180

tctactaaca acggtttgtt gttcatcaac actaccatcg cttctatcgc tgctaaggag 240

gaaggtgttt ccttggacaa gagagaggct tgtaacttgc caatcgtcag aggtccatgc 300

attgctttct tcccaagatg ggctttcgac gctgttaagg gtaagtgcgt cttgttccca 360

tacggtggtt gtcaaggtaa cggtaacaag ttctactctg agaaggagtg tagagagtac 420

tgtggtgttc catagtaaga attc 444

<210> 74
<211> 141
<212> PRT
<213> Artificial Sequence

<220>
<223> BstBI-AatII-EcoRI cassette for expression of Epi-HNE-4 (Table 252)

<400> 74

Met Arg Phe Pro Ser Ile Phe Thr Ala Val Leu Phe Ala Ala Ser Ser
1 5 10 15

Ala Leu Ala Ala Pro Val Asn Thr Thr Thr Glu Asp Glu Thr Ala Gln
20 25 30

Ile Pro Ala Glu Ala Val Ile Gly Tyr Ser Asp Leu Glu Gly Asp Phe
35 40 45

Asp Val Ala Val Leu Pro Phe Ser Asn Ser Thr Asn Asn Gly Leu Leu
50 55 60

Phe Ile Asn Thr Thr Ile Ala Ser Ile Ala Ala Lys Glu Glu Gly Val
65 70 75 80

Ser Leu Asp Lys Arg Glu Ala Cys Asn Leu Pro Ile Val Arg Gly Pro
85 90 95

Cys Ile Ala Phe Phe Pro Arg Trp Ala Phe Asp Ala Val Lys Gly Lys
100 105 110

Cys Val Leu Phe Pro Tyr Gly Gly Cys Gln Gly Asn Gly Asn Lys Phe
115 120 125

Tyr Ser Glu Lys Glu Cys Arg Glu Tyr Cys Gly Val Pro
130 135 140

<210> 75
<211> 8590
<212> DNA

<213> Artificial Sequence

<220>
<223> pD2pick (MFalphaPrePro::EPI-NHE-3) circular dsDNA (Table 253)

<400> 75
agatcgcggc cgcgatctaa catccaaaga cgaaaggttg aatgaaacct ttttgccatc 60

cgacatccac aggtccattc tcacacataa gtgccaaacg caacaggagg ggatacacta 120

gcagcagacc gttgcaaacg caggacctcc actcctcttc tcctcaacac ccacttttgc 180

catcgaaaaa ccagcccagt tattgggctt gattggagct cgctcattcc aattccttct 240

attaggctac taacaccatg actttattag cctgtctatc ctggcccccc tggcgaggtc 300

atgtttgttt atttccgaat gcaacaagct ccgcattaca cccgaacatc actccagatg 360

agggctttct gagtgtgggg tcaaatagtt tcatgttccc aaatggccca aaactgacag 420

tttaaacgct gtcttggaac ctaatatgac aaaagcgtga tctcatccaa gatgaactaa 480

gtttggttcg ttgaaatgct aacggccagt tggtcaaaaa gaaacttcca aaagtcgcca 540

taccgtttgt cttgtttggt attgattgac gaatgctcaa aaataatctc attaatgctt 600

agcgcagtct ctctatcgct tctgaacccg gtggcacctg tgccgaaacg caaatgggga 660

aacaacccgc tttttggatg attatgcatt gtcctccaca ttgtatgctt ccaagattct 720

ggtgggaata ctgctgatag cctaacgttc atgatcaaaa tttaactgtt ctaaccccta 780

cttgacaggc aatatataaa cagaaggaag ctgccctgtc ttaaaccttt ttttttatca 840

tcattattag cttactttca taattgcgac tggttccaat tgacaagctt ttgattttaa 900

cgacttttaa cgacaacttg agaagatcaa aaaacaacta attattcgaa acgatgagat 960

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acaccactac tgaagacgag actgctcaaa ttcctgctga ggctgtcatc ggttactctg 1080

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acaagagagc tgcttgtaac ttgccaatcg tcagaggtcc atgcattgct ttcttcccaa 1260

gatgggcttt cgacgctgtt aagggtaagt gcgtcttgtt cccatacggt ggttgtcaag 1320

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aagaattcgc cttagacatg actgttcctc agttcaagtt gggcattacg agaagaccgg 1440

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taagaacctt ctggagcatt gctcttacga tcccacaagg tgcttccatg gctctaagac 3780

cctttgattg gccaaaacag gaagtgcgtt ccaagtgaca gaaaccaaca cctgtttgtt 3840

caaccacaaa tttcaagcag tctccatcac aatccaattc gatacccagc aacttttgag 3900

ttcgtccaga tgtagcacct ttataccaca aaccgtgacg acgagattgg tagactccag 3960

tttgtgtcct tatagcctcc ggaatagact ttttggacga gtacaccagg cccaacgagt 4020

aattagaaga gtcagccacc aaagtagtga atagaccatc ggggcggtca gtagtcaaag 4080

acgccaacaa aatttcactg acagggaact ttttgacatc ttcagaaagt tcgtattcag 4140

tagtcaattg ccgagcatca ataatgggga ttataccaga agcaacagtg gaagtcacat 4200

ctaccaactt tgcggtctca gaaaaagcat aaacagttct actaccgcca ttagtgaaac 4260

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atgcaacttt atcaaccagg gtcctataga taaccctagc gcctgggatc atcctttgga 4380

caactctttc tgccaaatct aggtccaaaa tcacttcatt gataccatta tacggatgac 4440

tcaacttgca cattaacttg aagctcagtc gattgagtga acttgatcag gttgtgcagc 4500

tggtcagcag catagggaaa cacggctttt cctaccaaac tcaaggaatt atcaaactct 4560

gcaacacttg cgtatgcagg tagcaaggga aatgtcatac ttgaagtcgg acagtgagtg 4620

tagtcttgag aaattctgaa gccgtatttt tattatcagt gagtcagtca tcaggagatc 4680

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aaaccccaaa tcagctcgta gtctgatcct catcaacttg aggggcacta tcttgtttta 5640

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gcgtctattt cacaatacca acatgagtca gcttatcgat gataagctgt caaacatgag 5820

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gacttggttg agtactcacc agtcacagaa aagcatctta cggatggcat gacagtaaga 6420

gaattatgca gtgctgccat aaccatgagt gataacactg cggccaactt acttctgaca 6480

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gaccgagata gggttgagtg ttgttccagt ttggaacaag agtccactat taaagaacgt 7140

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agggagcccc cgatttagag cttgacgggg aaagccggcg aacgtggcga gaaaggaagg 7320

gaagaaagcg aaaggagcgg gcgctagggc gctggcaagt gtagcggtca cgctgcgcgt 7380

aaccaccaca cccgccgcgc ttaatgcgcc gctacagggc gcgtaaaagg atctaggtga 7440

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<210> 76
<211> 141
<212> PRT
<213> Artificial Sequence

<220>
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<400> 76

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1 5 10 15

Ala Leu Ala Ala Pro Val Asn Thr Thr Thr Glu Asp Glu Thr Ala Gln
20 25 30

Ile Pro Ala Glu Ala Val Ile Gly Tyr Ser Asp Leu Glu Gly Asp Phe
35 40 45

Asp Val Ala Val Leu Pro Phe Ser Asn Ser Thr Asn Asn Gly Leu Leu
50 55 60

Phe Ile Asn Thr Thr Ile Ala Ser Ile Ala Ala Lys Glu Glu Gly Val
65 70 75 80

Ser Leu Asp Lys Arg Ala Ala Cys Asn Leu Pro Ile Val Arg Gly Pro
85 90 95

Cys Ile Ala Phe Phe Pro Arg Trp Ala Phe Asp Ala Val Lys Gly Lys
100 105 110

Cys Val Leu Phe Pro Tyr Gly Gly Cys Gln Gly Asn Gly Asn Lys Phe
115 120 125

Tyr Ser Glu Lys Glu Cys Arg Glu Tyr Cys Gly Val Pro
130 135 140

<210> 77
<211> 147
<212> PRT
<213> Homo sapiens

<400> 77

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Ala Val Leu Pro Gln Glu Glu Glu Gly Ser Gly Gly Gly Gln Leu Val
1               5                  10                  15

Thr Glu Val Thr Lys Lys Glu Asp Ser Cys Gln Leu Gly Tyr Ser Ala
            20                  25                  30

Gly Pro Cys Met Gly Met Thr Ser Arg Tyr Phe Tyr Asn Gly Thr Ser
        35                  40                  45

Met Ala Cys Glu Thr Phe Gln Tyr Gly Gly Cys Met Gly Asn Gly Asn
    50                  55                  60

Asn Phe Val Thr Glu Lys Glu Cys Leu Gln Thr Cys Arg Thr Val Ala
65                  70                  75                  80

Ala Cys Asn Leu Pro Ile Val Arg Gly Pro Cys Arg Ala Phe Ile Gln
                85                  90                  95

Leu Trp Ala Phe Asp Ala Val Lys Gly Lys Cys Val Leu Phe Pro Tyr
            100                 105                 110

Gly Gly Cys Gln Gly Asn Gly Asn Lys Phe Tyr Ser Glu Lys Glu Cys
        115                 120                 125

Arg Glu Tyr Cys Gly Val Pro Gly Asp Gly Asp Glu Glu Leu Leu Arg
    130                 135                 140

Phe Ser Asn
145
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<210> 78
<211> 249
<212> DNA
<213> Artificial Sequence

<220>
<223> M13_III_signal::Human_LACI-D2::mature_M13_III (Table 720)

<400> 78

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gacttctgct tcctcgagga ggatcccggg atttgccgcg gttatattac gcgttatttc    120

tataataacc agactaagca atgtgagcgg ttcaagtatg gtggttgcct aggtaatatg    180

aacaacttcg agactctaga agagtgtaag aacatatgtg aggatggtgg tgctgagact    240

gttgagtct                                                            249
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<210> 79
<211> 83
<212> PRT
<213> Artificial Sequence

<220>
<223> LACI-D2 fusion protein (Table 720)

<400> 79

Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser
1 5 10 15

Gly Ala Lys Pro Asp Phe Cys Phe Leu Glu Glu Asp Pro Gly Ile Cys
20 25 30

Arg Gly Tyr Ile Thr Arg Tyr Phe Tyr Asn Asn Gln Thr Lys Gln Cys
35 40 45

Glu Arg Phe Lys Tyr Gly Gly Cys Leu Gly Asn Met Asn Asn Phe Glu
50 55 60

Thr Leu Glu Glu Cys Lys Asn Ile Cys Glu Asp Gly Gly Ala Glu Thr
65 70 75 80

Val Glu Ser

<210> 80
<211> 189
<212> DNA
<213> Artificial Sequence

<220>
<223> laci-d1 with cloning sites (Table 725)

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gcggccgaga tgcattcctt ctgcgctttc aaagctgatg acggtccgtg taaagctatc 60

atgaaacgtt tcttcttcaa cattttcacg cgtcagtgcg aggaattcat ttacggtggt 120

tgtgaaggta accagaaccg gttcgaatct ctagaggaat gtaagaagat gtgcactcgt 180

gacggcgcc 189

<210> 81
<211> 63
<212> PRT
<213> Artificial Sequence

<220>
<223> laci-d1 with linkers (Table 725)

<400> 81

Ala Ala Glu Met His Ser Phe Cys Ala Phe Lys Ala Asp Asp Gly Pro
1 5 10 15

Cys Lys Ala Ile Met Lys Arg Phe Phe Phe Asn Ile Phe Thr Arg Gln
20 25 30

Cys Glu Glu Phe Ile Tyr Gly Gly Cys Glu Gly Asn Gln Asn Arg Phe
35 40 45

Glu Ser Leu Glu Glu Cys Lys Lys Met Cys Thr Arg Asp Gly Ala
50 55 60

<210> 82
<211> 189
<212> DNA
<213> Artificial Sequence

<220>
<223> LACI-D1 hNE library (Table 730)

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<223> n is a, c, g or t

<220>
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<222> (47)..(47)
<223> n is a, c, g or t

<220>
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<222> (58)..(58)
<223> n is a, c, g or t

<220>
<221> misc_feature
<222> (65)..(65)
<223> n is a, c, g or t

<400> 82
gcggccgaga tgcattcctt ctgcgctttc aaagctnrtr vsggtcnttg trttgstntc 60

ttcmnscgtt dsttcttcaa cattttcacg cgtcagtgcs wgvhattcvh atacggtggt 120

tgtvhggsta acsrgaaccg gttcgaatct ctagaggaat gtaagaagat gtgcactcgt 180

gacggcgcc 189

<210> 83
<211> 63
<212> PRT
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<220>
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<222> (13)..(13)
<223> Xaa is Cys, Arg, Ser, Gly, Tyr, His, Asp or Asn

<220>
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<223> Xaa is Thr, Asn, Lys, Arg, Ser, Ala, Glu, Gly or Asp

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<222> (18)..(18)
<223> Xaa is Val or Ile

<220>
<221> misc_feature
<222> (19)..(19)
<223> Xaa is Ala or Gly

<220>
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<222> (20)..(20)
<223> Xaa is Phe, Leu, Ile or Val

<220>
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<222> (22)..(22)
<223> Xaa is Ser, Thr, Asn, Ile, Met, Gln, His, Leu, Pro, Lys or Arg

<220>
<221> misc_feature

<222> (24)..(24)
<223> Xaa is Cys, Tyr, Trp, Phe or Leu

<220>
<221> misc_feature
<222> (34)..(34)
<223> Xaa is Leu, Gln, Glu or Val

<220>
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<222> (35)..(35)
<223> Xaa is Gln, Leu, Pro, Thr, Lys, Val, Ile, Glu or Ala

<220>
<221> misc_feature
<222> (37)..(37)
<223> Xaa is Gln, Leu, Pro, Thr, Lys, Val, Glu, Ile or Ala

<220>
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<220>
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<222> (43)..(43)
<223> Xaa is Gly or Ala

<220>
<221> misc_feature
<222> (45)..(45)
<223> Xaa is Glu, Gly, Gln or Arg

<400> 83

Ala Ala Glu Met His Ser Phe Cys Ala Phe Lys Ala Xaa Xaa Gly Xaa
1 5 10 15

Cys Xaa Xaa Xaa Phe Xaa Arg Xaa Phe Phe Asn Ile Phe Thr Arg Gln
20 25 30

Cys Xaa Xaa Phe Xaa Tyr Gly Gly Cys Xaa Xaa Asn Xaa Asn Arg Phe
35 40 45

Glu Ser Leu Glu Glu Cys Lys Lys Met Cys Thr Arg Asp Gly Ala
50 55 60

<210> 84
<211> 201
<212> DNA
<213> Artificial Sequence

<220>
<223> LACI-D2 hNE library (Table 735)

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<220>
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<222> (44)..(44)
<223> n is a, c, g or t

<220>
<221> misc_feature
<222> (55)..(55)
<223> n is a, c, g or t

<220>
<221> misc_feature
<222> (62)..(62)
<223> n is a, c, g or t

<220>
<221> misc_feature
<222> (101)..(101)
<223> n is a, c, g or t

<400> 84
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mnscgttdst tctataataa ccaggctaag caatgtswgv nattcvhata tggtggttgc 120

vhggstaatv bgaacaactt cgagactcta gaagagtgta agaacatatg tgaggatggt 180

ggtgctgaga ctgttgagtc t 201

<210> 85
<211> 67
<212> PRT
<213> Artificial Sequence

<220>
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<223> Xaa is Pro, His, Thr, Asn, Lys, Arg, Ser, Ala, Glu, Gly, Asp or G
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<220>
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<223> Xaa is His, Arg, Pro, Leu, Asn, Ser, Ile or Thr

<220>
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<222> (17)..(17)
<223> Xaa is Val or Ile

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<222> (18)..(18)
<223> Xaa is Gly or Ala

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<222> (19)..(19)
<223> Xaa is Phe, Leu, Ile, Val, Tyr, His, Asn or Asp

<220>
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<220>
<221> misc_feature
<222> (33)..(33)
<223> Xaa is Leu, Gln, Glu or Val

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<223> Xaa is Gln, Gly, Leu, Pro, Thr, Lys, Val, Ile, Glu, Ala or Arg

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<223> Xaa is Arg, Gly, Lys, Glu, Leu, Gln, Met or Val

<400> 85

Gly Ala Lys Pro Asp Phe Cys Phe Leu Glu Glu Xaa Xaa Gly Xaa Cys
1 5 10 15

Xaa Xaa Xaa Phe Xaa Arg Xaa Phe Tyr Asn Asn Gln Ala Lys Gln Cys
20 25 30

Xaa Xaa Phe Xaa Tyr Gly Gly Cys Xaa Xaa Asn Xaa Asn Asn Phe Glu
35 40 45

Thr Leu Glu Glu Cys Lys Asn Ile Cys Glu Asp Gly Gly Ala Glu Thr
50 55 60

Val Glu Ser
65

<210> 86
<211> 51
<212> PRT
<213> Artificial Sequence

<220>
<223> definition of aprotonin-like Kunitz domain (p. 11)

<220>
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<223> Xaa is any amino acid

<220>
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<222> (9)..(9)
<223> Xaa is any amino acid

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<222> (11)..(18)
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<223> Xaa is any Tyr or Phe

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<221> misc_feature
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<222> (40)..(40)
<223> Xaa is any amino acid

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<222> (41)..(41)
<223> Xaa is Phe or Tyr

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<222> (42)..(46)
<223> Xaa is any amino acid

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<222> (48)..(50)
<223> Xaa is any amino acid

<400> 86

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1               5                   10                  15

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa Phe Xaa Xaa Xaa
            20                  25                  30

Gly Cys Xaa Xaa Xaa Xaa Xaa Xaa Phe Xaa Xaa Xaa Xaa Xaa Cys Xaa
        35                  40                  45

Xaa Xaa Cys
    50
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<210> 87
<211> 58
<212> PRT
<213> Bos Taurus

<400> 87

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Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
1               5                   10                  15
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```
Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
        35                  40                  45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55
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<210> 88
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Engineered B-PTI from MARK87

<400> 88

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Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Thr Lys Ala
1               5                   10                  15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30

Phe Val Tyr Gly Gly Thr Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
        35                  40                  45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55
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<210> 89
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Engineered B-PTI from MARK87

<400> 89

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Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Ala Lys Ala
1               5                   10                  15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30

Phe Val Tyr Gly Gly Ala Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
        35                  40                  45
```

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 90
<211> 67
<212> PRT
<213> Bos taurus

<400> 90

Phe Gln Thr Pro Pro Asp Leu Cys Gln Leu Pro Gln Ala Arg Gly Pro
1 5 10 15

Cys Lys Ala Ala Leu Leu Arg Tyr Phe Tyr Asn Ser Thr Ser Asn Ala
20 25 30

Cys Glu Pro Phe Thr Tyr Gly Gly Cys Gln Gly Asn Asn Asn Asn Phe
35 40 45

Glu Thr Thr Glu Met Cys Leu Arg Ile Cys Glu Pro Pro Gln Gln Thr
50 55 60

Asp Lys Ser
65

<210> 91
<211> 60
<212> PRT
<213> Bos Taurus

<400> 91

Thr Glu Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys
1 5 10 15

Lys Ala Ala Met Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Phe Cys
20 25 30

Glu Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Ser Asn Asn Phe Lys
35 40 45

Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55 60

<210> 92
<211> 58

<212> PRT
<213> Artificial Sequence

<220>
<223> Semisynthetic BPTI, TSCH87

<400> 92

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 93
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Semisynthetic BPTI, TSCH87

<400> 93

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Gly Ala
1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 94
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Semisynthetic BPTI, TSCH87

<400> 94

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ala Ala
1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 95
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Semisynthetic BPTI, TSCH87

<400> 95

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Leu Ala
1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 96
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Semisynthetic BPTI, TSCH87

<400> 96

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ile Ala
1 5 10 15

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Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
        35                  40                  45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55
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<210> 97
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Engineered BPTI, AUER87

<400> 97

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Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
1               5                   10                  15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
        35                  40                  45

Glu Asp Cys Glu Arg Thr Cys Gly Gly Ala
    50                  55
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<210> 98
<211> 60
<212> PRT
<213> Dendroaspis polylepis polylepis

<400> 98

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Gln Pro Leu Arg Lys Leu Cys Ile Leu His Arg Asn Pro Gly Arg Cys
1               5                   10                  15

Tyr Gln Lys Ile Pro Ala Phe Tyr Tyr Asn Gln Lys Lys Lys Gln Cys
            20                  25                  30

Glu Gly Phe Thr Trp Ser Gly Cys Gly Gly Asn Ser Asn Arg Phe Lys
        35                  40                  45

Thr Ile Glu Glu Cys Arg Arg Thr Cys Ile Arg Lys
```

50 55 60

<210> 99
<211> 57
<212> PRT
<213> Dendroaspis polylepis polylepis

<400> 99

Ala Ala Lys Tyr Cys Lys Leu Pro Leu Arg Ile Gly Pro Cys Lys Arg
1 5 10 15

Lys Ile Pro Ser Phe Tyr Tyr Lys Trp Lys Ala Lys Gln Cys Leu Pro
20 25 30

Phe Asp Tyr Ser Gly Cys Gly Gly Asn Ala Asn Arg Phe Lys Thr Ile
35 40 45

Glu Glu Cys Arg Arg Thr Cys Val Gly
50 55

<210> 100
<211> 57
<212> PRT
<213> Hemachatus hemachates

<400> 100

Arg Pro Asp Phe Cys Glu Leu Pro Ala Glu Thr Gly Leu Cys Lys Ala
1 5 10 15

Tyr Ile Arg Ser Phe His Tyr Asn Leu Ala Ala Gln Gln Cys Leu Gln
20 25 30

Phe Ile Tyr Gly Gly Cys Gly Gly Asn Ala Asn Arg Phe Lys Thr Ile
35 40 45

Asp Glu Cys Arg Arg Thr Cys Val Gly
50 55

<210> 101
<211> 57
<212> PRT
<213> Naja nivea

<400> 101

Arg Pro Arg Phe Cys Glu Leu Pro Ala Glu Thr Gly Leu Cys Lys Ala
1 5 10 15

Arg Ile Arg Ser Phe His Tyr Asn Arg Ala Ala Gln Gln Cys Leu Glu
20 25 30

Phe Ile Tyr Gly Gly Cys Gly Gly Asn Ala Asn Arg Phe Lys Thr Ile
35 40 45

Asp Glu Cys His Arg Thr Cys Val Gly
50 55

<210> 102
<211> 60
<212> PRT
<213> Vipera russelli

<400> 102

His Asp Arg Pro Thr Phe Cys Asn Leu Pro Pro Glu Ser Gly Arg Cys
1 5 10 15

Arg Gly His Ile Arg Arg Ile Tyr Tyr Asn Leu Glu Ser Asn Lys Cys
20 25 30

Lys Val Phe Phe Tyr Gly Gly Cys Gly Gly Asn Ala Asn Asn Phe Glu
35 40 45

Thr Arg Asp Glu Cys Arg Glu Thr Cys Gly Gly Lys
50 55 60

<210> 103
<211> 64
<212> PRT
<213> Caretta sp.

<400> 103

Glx Gly Asp Lys Arg Asp Ile Cys Arg Leu Pro Pro Glu Gln Gly Pro
1 5 10 15

Cys Lys Gly Arg Leu Pro Arg Tyr Phe Tyr Asn Pro Ala Ser Arg Met
20 25 30

Cys Glu Ser Phe Ile Tyr Gly Gly Cys Lys Gly Asn Lys Asn Asn Phe
35 40 45

Lys Thr Lys Ala Glu Cys Val Arg Ala Cys Arg Pro Pro Glu Arg Pro
50 55 60

<210> 104
<211> 58
<212> PRT
<213> Helix pomatia

<400> 104

Glx Gly Arg Pro Ser Phe Cys Asn Leu Pro Ala Glu Thr Gly Pro Cys
1 5 10 15

Lys Ala Ser Ile Arg Gln Tyr Tyr Tyr Asn Ser Lys Ser Gly Gly Cys
20 25 30

Gln Gln Phe Ile Tyr Gly Gly Cys Arg Gly Asn Gln Asn Arg Phe Asp
35 40 45

Thr Thr Gln Gln Cys Gln Gly Val Cys Val
50 55

<210> 105
<211> 57
<212> PRT
<213> Dendroaspis angusticeps

<400> 105

Ala Ala Lys Tyr Cys Lys Leu Pro Val Arg Tyr Gly Pro Cys Lys Lys
1 5 10 15

Lys Phe Pro Ser Phe Tyr Tyr Asn Trp Lys Ala Lys Gln Cys Leu Pro
20 25 30

Phe Asn Tyr Ser Gly Cys Gly Gly Asn Ala Asn Arg Phe Lys Thr Ile
35 40 45

Glu Glu Cys Arg Arg Thr Cys Val Gly
50 55

<210> 106
<211> 59
<212> PRT
<213> Dendroaspis angusticeps

<400> 106

Glx Pro Arg Arg Lys Leu Cys Ile Leu His Arg Asn Pro Gly Arg Cys
1 5 10 15

Tyr Asp Lys Ile Pro Ala Phe Tyr Tyr Asn Gln Lys Lys Lys Gln Cys
20 25 30

Glu Arg Phe Asp Trp Ser Gly Cys Gly Gly Asn Ser Asn Arg Phe Lys
35 40 45

Thr Ile Glu Glu Cys Arg Arg Thr Cys Ile Gly
50 55

<210> 107
<211> 57
<212> PRT
<213> Dendroaspis polylepis polylepis

<400> 107

Arg Pro Tyr Ala Cys Glu Leu Ile Val Ala Ala Gly Pro Cys Met Phe
1 5 10 15

Phe Ile Ser Ala Phe Tyr Tyr Ser Lys Gly Ala Asn Lys Cys Tyr Pro
20 25 30

Phe Thr Tyr Ser Gly Cys Arg Gly Asn Ala Asn Arg Phe Lys Thr Ile
35 40 45

Glu Glu Cys Arg Arg Thr Cys Val Val
50 55

<210> 108
<211> 59
<212> PRT
<213> Dendroaspis polylepis polylepis

<400> 108

Leu Gln His Arg Thr Phe Cys Lys Leu Pro Ala Glu Pro Gly Pro Cys
1 5 10 15

Lys Ala Ser Ile Pro Ala Phe Tyr Tyr Asn Trp Ala Ala Lys Lys Cys
20 25 30

Gln Leu Phe His Tyr Gly Gly Cys Lys Gly Asn Ala Asn Arg Phe Ser
35 40 45

Thr Ile Glu Lys Cys Arg His Ala Cys Val Gly
50 55

<210> 109
<211> 61
<212> PRT
<213> Vipera ammodytes

<400> 109

Glx Asp His Pro Lys Phe Cys Tyr Leu Pro Ala Asp Pro Gly Arg Cys
1 5 10 15

Lys Ala His Ile Pro Arg Phe Tyr Tyr Asp Ser Ala Ser Asn Lys Cys
20 25 30

Asn Lys Phe Ile Tyr Gly Gly Cys Pro Gly Asn Ala Asn Asn Phe Lys
35 40 45

Thr Trp Asp Glu Cys Arg Gln Thr Cys Gly Ala Ser Ala
50 55 60

<210> 110
<211> 62
<212> PRT
<213> Vipera ammodytes

<400> 110

Arg Asp Arg Pro Lys Phe Cys Tyr Leu Pro Ala Asp Pro Gly Arg Cys
1 5 10 15

Leu Ala Tyr Met Pro Arg Phe Tyr Tyr Asn Pro Ala Ser Asn Lys Cys
20 25 30

Glu Lys Phe Ile Tyr Gly Gly Cys Arg Gly Asn Ala Asn Asn Phe Lys
35 40 45

Thr Trp Asp Glu Cys Arg His Thr Cys Val Ala Ser Gly Ile
50 55 60

<210> 111
<211> 62
<212> PRT
<213> Bungarus fasciatus

<400> 111

Lys Asn Arg Pro Thr Phe Cys Asn Leu Leu Pro Glu Thr Gly Arg Cys
1 5 10 15

Asn Ala Leu Ile Pro Ala Phe Tyr Tyr Asn Ser His Leu His Lys Cys
20 25 30

Gln Lys Phe Asn Tyr Gly Gly Cys Gly Gly Asn Ala Asn Asn Phe Lys
35 40 45

Thr Ile Asp Glu Cys Gln Arg Thr Cys Ala Ala Lys Tyr Gly
50 55 60

<210> 112
<211> 59
<212> PRT
<213> Anemonia sulcata

<400> 112

Ile Asn Gly Asp Cys Glu Leu Pro Lys Val Val Gly Pro Cys Arg Ala
1 5 10 15

Arg Phe Pro Arg Tyr Tyr Tyr Asn Ser Ser Ser Lys Arg Cys Glu Lys
20 25 30

Phe Ile Tyr Gly Gly Cys Gly Gly Asn Ala Asn Asn Phe His Thr Leu
35 40 45

Glu Glu Cys Glu Lys Val Cys Gly Val Arg Ser
50 55

<210> 113
<211> 56
<212> PRT
<213> Homo sapiens

<400> 113

Lys Glu Asp Ser Cys Gln Leu Gly Tyr Ser Ala Gly Pro Cys Met Gly
1 5 10 15

Met Thr Ser Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys Glu Thr
20 25 30

Phe Gln Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val Thr Glu
35 40 45

Lys Glu Cys Leu Gln Thr Cys Arg
50 55

<210> 114
<211> 61
<212> PRT
<213> Homo sapiens

<400> 114

Thr Val Ala Ala Cys Asn Leu Pro Val Ile Arg Gly Pro Cys Arg Ala
1 5 10 15

Phe Ile Gln Leu Trp Ala Phe Asp Ala Val Lys Gly Lys Cys Val Leu
20 25 30

Phe Pro Tyr Gly Gly Cys Gln Gly Asn Gly Asn Lys Phe Tyr Ser Glu
35 40 45

Lys Glu Cys Arg Glu Tyr Cys Gly Val Pro Gly Asp Glu
50 55 60

<210> 115
<211> 60
<212> PRT
<213> Bungarus multicinctus

<400> 115

Arg Gln Arg His Arg Asp Cys Asp Lys Pro Pro Asp Lys Gly Asn Cys
1 5 10 15

Gly Pro Val Arg Ala Phe Tyr Tyr Asp Thr Arg Leu Lys Thr Cys Lys
20 25 30

Ala Phe Gln Tyr Arg Gly Cys Asp Gly Asp His Gly Asn Phe Lys Thr
35 40 45

Glu Thr Leu Cys Arg Cys Glu Cys Leu Val Tyr Pro
50 55 60

<210> 116
<211> 60
<212> PRT
<213> Bungarus multicinctus

<400> 116

Arg Lys Arg His Pro Asp Cys Asp Lys Pro Pro Asp Thr Lys Ile Cys
1 5 10 15

Gln Thr Val Arg Ala Phe Tyr Tyr Lys Pro Ser Ala Lys Arg Cys Val

20 25 30

Gln Phe Arg Tyr Gly Gly Cys Asp Gly Asp His Gly Asn Phe Lys Ser
35 40 45

Asp His Leu Cys Arg Cys Glu Cys Glu Leu Tyr Arg
50 55 60

<210> 117
<211> 58
<212> PRT
<213> Bos taurus

<400> 117

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
1 5 10 15

Lys Met Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Phe Cys Glu Thr
20 25 30

Phe Val Tyr Gly Gly Cys Lys Ala Lys Ser Asn Asn Phe Arg Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 118
<211> 61
<212> PRT
<213> Tachypleus tridentatus

<400> 118

Thr Glu Arg Gly Phe Leu Asp Cys Thr Ser Pro Pro Val Thr Gly Pro
1 5 10 15

Cys Arg Ala Gly Phe Lys Arg Tyr Asn Tyr Asn Thr Arg Thr Lys Gln
20 25 30

Cys Glu Pro Phe Lys Tyr Gly Gly Cys Lys Gly Asn Gly Asn Arg Tyr
35 40 45

Lys Ser Glu Gln Asp Cys Leu Asp Ala Cys Ser Gly Phe
50 55 60

<210> 119

<211> 63
<212> PRT
<213> Bombyx mori

<400> 119

Asp Glu Pro Thr Thr Asp Leu Pro Ile Cys Glu Gln Ala Phe Gly Asp
1 5 10 15

Ala Gly Leu Cys Phe Gly Tyr Met Lys Leu Tyr Ser Tyr Asn Gln Glu
20 25 30

Thr Lys Asn Cys Glu Glu Phe Ile Tyr Gly Gly Cys Gln Gly Asn Asp
35 40 45

Asn Arg Phe Ser Thr Leu Ala Glu Cys Glu Gln Lys Cys Ile Asn
50 55 60

<210> 120
<211> 56
<212> PRT
<213> Bos taurus

<400> 120

Lys Ala Asp Ser Cys Gln Leu Asp Tyr Ser Gln Gly Pro Cys Leu Gly
1 5 10 15

Leu Phe Lys Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys Glu Thr
20 25 30

Phe Leu Tyr Gly Gly Cys Met Gly Asn Leu Asn Asn Phe Leu Ser Gln
35 40 45

Lys Glu Cys Leu Gln Thr Cys Arg
50 55

<210> 121
<211> 61
<212> PRT
<213> Bos taurus

<400> 121

Thr Val Glu Ala Cys Asn Leu Pro Ile Val Gln Gly Pro Cys Arg Ala
1 5 10 15

Phe Ile Gln Leu Trp Ala Phe Asp Ala Val Lys Gly Lys Cys Val Arg
20 25 30

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Phe Ser Tyr Gly Gly Cys Lys Gly Asn Gly Asn Lys Phe Tyr Ser Gln
        35                  40                  45

Lys Glu Cys Lys Glu Tyr Cys Gly Ile Pro Gly Glu Ala
    50                  55                  60
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<210> 122
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Engineered BPTI (KR15, ME52)

<400> 122

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Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Arg Ala
1               5                   10                  15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
        35                  40                  45

Glu Asp Cys Glu Arg Thr Cys Gly Gly Ala
    50                  55
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<210> 123
<211> 59
<212> PRT
<213> Artificial Sequence

<220>
<223> Isoaprotinin G-1

<400> 123

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Glx Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys
1               5                   10                  15

Ala Arg Met Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln
            20                  25                  30

Pro Phe Val Tyr Gly Gly Cys Arg Ala Lys Ser Asn Asn Phe Lys Ser
        35                  40                  45
```

Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 124
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Isoaprotinin 2

<400> 124

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Pro
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ser
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 125
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Isoaprotinin G-2

<400> 125

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
1 5 10 15

Arg Met Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Pro
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 126
<211> 58

<212> PRT
<213> Artificial Sequence

<220>
<223> Isoaprotinin 1

<400> 126

Arg Pro Asp Phe Cys Leu Glu Prc Pro Tyr Thr Gly Pro Cys Lys Ala
1 5 10 15

Lys Met Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Phe Cys Glu Thr
20 25 30

Phe Val Tyr Gly Gly Cys Lys Ala Lys Ser Asn Asn Phe Arg Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 127
<211> 11
<212> DNA
<213> Artificial Sequence

<220>
<223> PfMI restriction site

<220>
<221> misc_feature
<222> (4)..(8)
<223> n is a, c, g or t

<400> 127
ccannnnntg g 11

<210> 128
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> XcmI restriction site

<220>
<221> misc_feature
<222> (4)..(12)
<223> n is a, c, g or t

<400> 128
ccannnnnnn nntgg 15

<210> 129
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> amino acids 13-21 of EpiNE alpha

<400> 129

Pro Cys Val Ala Met Phe Gln Arg Tyr
1 5